

Abstract Submitted
for the Washington, D. C. Meeting of the
American Physical Society
21-24 April 1980

LBL-10412 C.1
1-80

Physics and Astronomy
Classification and Scheme
Number 34

Bulletin Subject heading in white
paper should be placed: X-rays,
Ion-Atom Collisions

Cross Sections for Radiative Electron Capture
(REC) by 20-80 MeV Cl Ions Incident on C and Cu Foils*,
J.A. TANIS, Lawrence Berkeley Laboratory, Berkeley, Ca.,
and S.M. SHAFROTH and J.E. WILLIS, Univ. of North Caro-
lina, Chapel Hill and Triangle Universities Nuclear Labo-
ratory, Durham, N.C.--We find that the measured REC cross
sections scale according to the number of "free" elec-
trons on the target atom, i.e., those bound target elec-
trons with a velocity \ll than the incident projectile
velocity. Comparison is made with the free-electron
theory of Bethe and Salpeter. Excellent agreement is ob-
tained if it is assumed that each of the "free" target
electrons contributes equally to REC. Experimental and
theoretical results are compared with those of Lindskog
et al. (1) and the discrepancies are discussed. Con-
sideration is given to different ways of determining the
Cl K-shell binding energy which is needed to compute the
REC cross section. The best agreement with experiment
results if the centroid of the measured REC peak is used
to calculate the effective Cl K-shell binding energy.
1. J. Lindskog *et al.*, Phys. Scrip. 14, 100 (1976).
* This work was supported by the U. S. Department of
Energy.

() Prefer Poster Session

☒ Prefer Oral Session

() No Preference

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MAR 28 1980

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